Lessons Learned from the ASEE/NSF Strategic Investment Summit

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Strategic Initiatives

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Planning Committee

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- C. Fred Higgs, mechanical engineering professor and vice provost for academic affairs, Rice University
- Marcus Huggans, senior director for external affairs, National GEM Consortium
- Peter Romine, head of Electrical Engineering, Navajo Technical University
- G. Dale Wesson, vice president for research and economic development, Virginia State University

Focus: Small & Medium Colleges and Universities

- Provide social mobility for low income families
- Experience financial pressure from shrinking government support
- Face challenges
  - High teaching loads
  - Lack of administrative/grantsmanship support
  - Reward
- Identify what is needed to build research capacity and success

2019 NASEM MSI report calls for “bold, innovative steps to enhance and enrich the education, student development, training, and research capabilities of MSIs.”

Strategic Investment Summit

- Purpose
  - Engage thought leaders and key stakeholders from under-participating institutions to exchange ideas and experiences
  - Generate new knowledge that informs the broader community about research opportunities for under-participating institutions.
- Audience
  - Faculty and administrators from 41 institutions
  - Speakers: Government agencies, administrators, senior faculty

ASEE
AMERICAN SOCIETY FOR ENGINEERING EDUCATION

Alexandria, VA
September 27-28,2019

NSF

Summit Goals

- Build a community of like-minded institutions.
- Identify and examine the road blocks that impede the pursuit and performance of federally funded or sponsored research as a source of funding and growth at MSI institutions.
- Provide institutional representatives (deans, provosts, research vice presidents, and college presidents) the opportunity to assess their strengths and to develop a high-level strategic plan to host sponsored research programs.
- Inspire institutional investment in sponsored research and prioritize potential investments in under-participating institutions.

Participant Selection

NSF Higher Education Research and Development survey

- Primary source of information on R&D expenditures at U.S. colleges and universities.
- Identified 152 colleges with less than $17 million in annual research expenditures.

Committee invited 36 participants and received 31 acceptances

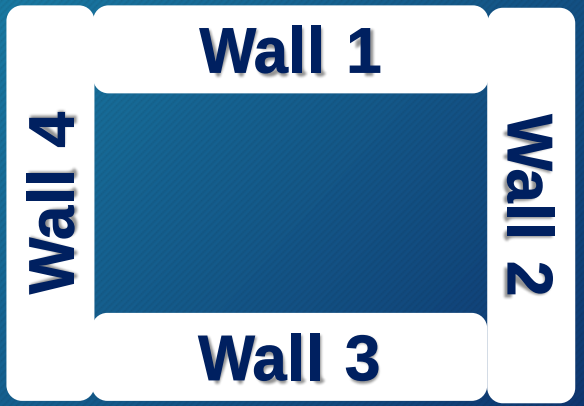
- Half from minority-serving
- Half from majority white institutions that were historically teaching colleges and aspired to build research strength.

Meeting Concept

Build the “virtual foundation” walls of a virtual (incubator) resource center.

Identify resources needs (building materials).

Prioritize needs tp define composition of each wall.



Resource Center Walls

Wall #1: Institutional Research Support

1. Institutional resources
2. Proposal development
3. Faculty incentives for research
4. Space and infrastructure
5. Interdisciplinary research
6. Identification of opportunities that align with expertise

SOARCE

Strategic Opportunity Acquisition Resource Center Enterprise

Wall #2: CONTRACTS & GRANTS ADMINISTRATION

1. Compliance with federal regulations and state law, and university regulations and procedures
2. Training for contract & grants staff and faculty
3. Communication between PIs and institutional business office.
4. Fiscal oversight
5. Expenditure processing (approvals), billing, and tracking

Wall #3: Scholarly Work

SOARCE
Strategic Opportunity Acquisition Resource Center Enterprise

1. Proposal development
2. Establishment and maintenance of research laboratory and research team
3. Collaborations with domain experts, including evaluators and social science/education researchers
4. Technical writing support
5. Integration of research and education
6. Partnerships and collaborations

Wall #4: INSTITUTIONAL FACULTY SUPPORT (UNIVERSITY, COLLEGE, DEPARTMENT)

1. Commitment to reward/incentivize research activity
2. Opportunities for professional development
3. Mentoring
4. Proposal review (internal and external)
5. Student pipeline support
6. Facilities and laboratory space

SOARCE
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Highlights from Speakers and Discussions

- Criticality of including the voice of student and faculty researchers from MSIs and smaller universities.
- Importance of diversifying sources for funding
- Return-on-investment from taking a leave of absence to work at a research agency
- Involvement in interdisciplinary and convergence research
- Significance of course-based research
- Growth through partnerships with research intensive colleges, universities, agencies, and companies

Next Steps-1

- Vision for SOARCE
  - Allow schools to fill gaps in their own expertise and staff during the entire grant process, from identification of research opportunities to the final closeout of an award.
  - Seek help in finding appropriate research collaborators, developing the proposal, writing and proofing.
  - Could assist with fiscal oversight and compliance with agency rules.

Next Steps-2

- Visiting Innovative Scholar Research Program for Institutions Orienting to National Needs (VISION)
  - Recruit, match, mentor, train, and place early and mid-career science and engineering Ph.D.'s at small and medium-size colleges to accelerate research and innovation.
  - Small and medium-sized schools could secure funding to support scholars, with two-year appointments, who would either perform research or teach.
  - These roles would be spelled out in a three-year research plan approved by the school's leadership.
- Host webinars to acquaint viewers with programs, e.g., Defense Advanced Research Projects Agency (DARPA) and the National Council on Entrepreneurial Tech Transfer NCET2.

Questions